DOCUMENT RESUME

ED 419 532 IR 019 156

AUTHOR Sullivan, Monty
TITLE Analysis of Student Field Dependent Status, Attitude toward the Technology Medium, and Perception of Interaction in a Distance Education Setting: Implications for Improving the Quality of Distance Education.
PUB DATE 1998-03-00
NOTE 12p.; Paper presented at the Conference for the Louisiana Educational Research Association (March, 1998).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE EDRS Price MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *Cognitive Style; *Distance Education; Educational Environment; Educational Equipment; *Educational Technology; Elementary Secondary Education; *Field Dependence Independence; Interaction Process Analysis; *Student Attitudes; *Student Motivation

ABSTRACT

This study is an analysis of student learning style (field dependence/independence), student attitudes toward the technology medium, and student perception of interaction. Research indicates that field independent (FI) individuals are more successful in distance education settings than field dependent (FD) individuals, which is a result of their ability to structure information and their environment. FD individuals thrive in a learning situation with high levels of interaction and a fostering of positive student attitudes. FD individuals rely upon the environment around them to develop their personal identity in the distance education classroom. In this study, field dependence status serves as the independent variable, while student attitude toward the technology medium and student perception of interaction are both dependent variables. A linear path analysis is used to determine if a causal relationship exists between the given variables. The proven stability of the field dependent construct means that changing a student's level of field dependence is not an option for improving a student's opportunities for success in a distance education setting. Informing students of the basic functions of the technical equipment and the day-to-day operation of the classroom could yield a more positive attitude towards the technology. (AEF)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 419 532

Analysis of Student Field Dependent Status, Attitude Toward the Technology Medium, and Perception of Interaction in a Distance Education Setting: Implications for Improving the Quality of Distance Education

Louisiana Educational Research Association
1998 Conference

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Monty Sullivan
Louisiana State University at Eunice

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE AND IN ELECTRONIC MEDIA FOR ERIC COLLECTION SUBSCRIBERS ONLY HAS BEEN GRANTED BY
Monty Sullivan
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

IR019156

Distance education is quickly becoming a common feature in schools at all levels. Technological advances have brought about major improvements in the quality of distance education instruction. Though interaction has been improved by these advancements, barriers still exist to the interaction process, which in turn impacts the instructional process. Research on distance education has focused on many different facets, including technical developments, student performance, student learning styles, environmental factors, and content appropriateness. This study is an analysis of student learning style (field dependence/independence), student attitude toward the technology medium, and student perception of interaction.

Research indicates that field independent (FI) individuals are more successful in distance education settings than field dependent (FD) individuals, reported as a result of their ability to structure information and their environment. FD individuals have been shown to be less structured and more sensitive to the affective domain. Therefore, FD individuals thrive in a learning situation with high levels of interaction and a fostering of positive student attitudes. FD individuals rely upon the environment around them to develop their personal identity in the distance education classroom.

If the technology medium filters social cues such as facial expressions, hand gestures, and eye movements, the FD individuals will struggle in developing their identity and becoming a part of the group. FD individuals could conceivably develop a negative attitude toward the technology because of the barrier that it represents in the interaction

process. Additionally, the student may perceive interaction in the distance education classroom to be significantly less than that found in a traditional classroom.

This study uses a linear path analysis to determine if a causal relationship exists between the given variables. Field dependence status serves as the independent variable, while student attitude toward the technology medium and student perception of interaction are both dependent variables. The model on the following page graphically depicts the analysis of these variables.

If a causal relationship is found, this study could provide distance educators with critical information as to how distance education classroom environments can be improved. The proven stability of the field dependent construct means that changing a student's level of field dependence is not an option for improving a student's opportunities for success in a distance education setting. Additionally, focusing on student perception of interaction as a means of improving a student's academic success, is not viable. Improving student perception of interaction would probably mean a costly upgrade of technical equipment. Student attitude toward the technology medium may represent a means of improving student academic success in a distance education setting. Informing students of the basic functions of the technical equipment and the day-to-day operation of the classroom could yield a more positive attitude on the part of the students toward the technology medium. With an improved attitude toward the technology, students will likely have a feel more comfortable in interacting and learning over the distance education medium.

Model of the Relationship Between Field Dependent Status, Student Attitude Toward the Technology Medium, and Student Perception of Interaction

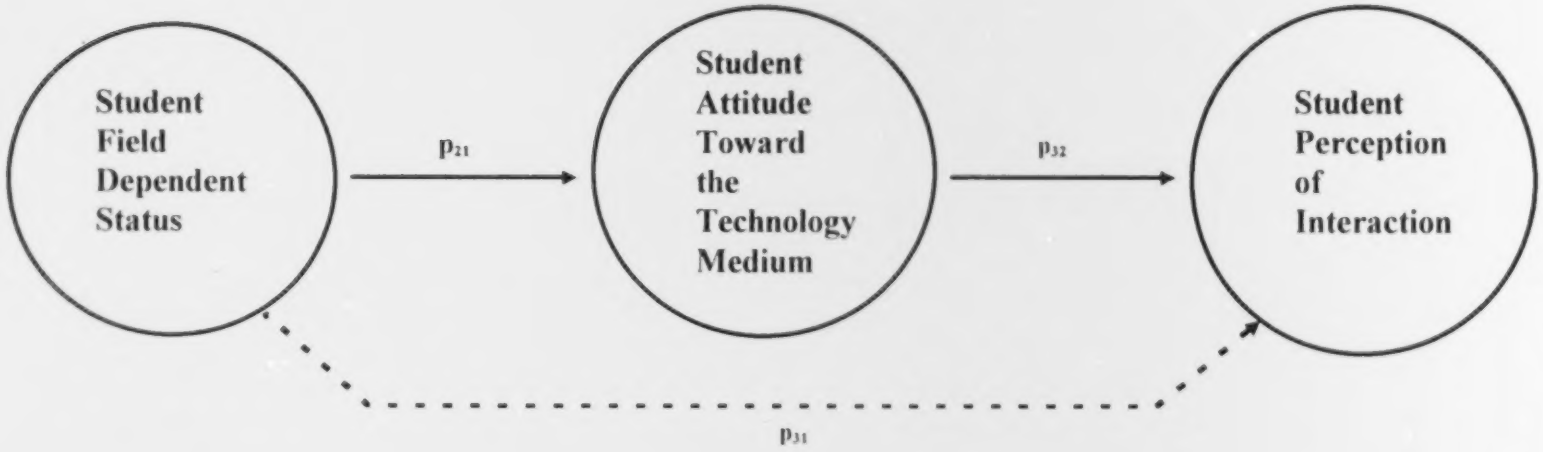

Diagram Key:

Student Field Dependent Status- Independent Variable
Student Attitude Toward the Technology Medium- Dependent Variable
Student Perception of Interaction- Dependent Variable

P_{21}- Possible Direct Causal Relationship
P_{32}- Possible Direct Causal Relationship
P_{31}- Possible Indirect Relationship

References

Adcock, C. & Webberly, M. (1971). Primary mental abilities. Journal of General Psychology, 84, 229-243.

Alaska University at Anchorage (1990) Distance education interaction and feedback at glance. ED343575

Alford, N. (1991) Attitude and communication in the electronic classroom: A closer look at the interactive television system of instruction. ED339065

Anderson, J. & Adams, M. (1992). Acknowledging the learning styles of diverse student populations: Implications for instructional design. New Directions for Teaching and Learning, 49, 19-33.

Bard, Therese Bissen (1996) Cooperative activities in interactive distance learning, Journal of Education for Library and Information Science, 37(1), 2-10 Winter. EJ531063

Belton, B. (1994) A pilot study of interactions between teachers and senior students at the brisbane school of distance education. ED390611

Bernt, F. & Bugbee, A. (1993) Study practices and attitudes related to academic success in a distance learning programme, Distance Education, 14(1), 97-114.

Borich, G. (1996). Effective Teaching Methods (3rd edition). Engelwood Cliffs, NJ: Prentice Hall.

Bork, A. (1995) Distance learning and interaction: Toward a virtual learning institution, Journal of Science Education and Technology, 4(3), 227-44 September. EJ516938

Bozik, M. (1996). Student perceptions of a two-way interactive video class, Technological Horizons in Education, 24(2), 99-102.

Buckland, M. & Dye, C. (1991). The development of electronic distance education delivery systems in the United States. Recurring and emerging themes in history and philosophy of education. (ERIC Document Reproduction Service No. ED 345 713)

Burge, E. et al. (1991) Mediation in distance learning: An investigation of the role of tutoring. ED339349

Burge, E. & Howard, J. (1990) Audio-conferencing in graduate education: A case study, The American Journal of Distance Education, 4(2), 3-13.

Burwell, L. (1991) The interaction of learning styles with learner control treatments in an interactive videodisc lesson, Educational Technology, 31(3), 37-43. EJ423418

Caliste, E. (1985). The relationship between the group embedded figures test and selected performance variables. Performance and Instruction Journal, 24(9), 26-28.

Chinien, C. & Boutin, F. (1992) Cognitive style FD/FI as learner selection criterion in formative evaluation: A qualitative analysis, Performance Improvement Quarterly, 5(2), 24-33. EJ446267

Chinien, C. & Boutin, F. (1993). Cognitive style FD/I: An important learner characteristic for educational technologists. Journal of Educational Technology Systems, 21, 303-311.

Coldeway, D., MacRury, K., & Spencer, R. (1980) Distance education from the learner's perspective: The results of individual learner tracking at athabasca university. ED259228

Distance Education at a Glance (1998). A Series of Guides Prepared by Engineering Outreach at the University of Idaho, Moscow, ID 83844-1014 at http://www.uidaho.edu/evo/distglan.html

Educational Testing Service, Princeton, New Jersey (1990) Classroom interaction. Annotated bibliography of tests. ED369825

Egan, M., Sebastian, J., & Welch, M. (1991) Effective television teaching: Perceptions of those who count most...distance learners. Proceedings of the Rural Education Symposium, Nashville, TN. ED342579

Ehrman, M. (1990) Psychological factors and distance education, American Journal of Distance Education, 4(1), 10-24. EJ410616

Evans, T. (1995) Matters of modernity, late modernity, and self-identity in distance education, European Journal of Psychology of Education, 10(2), 169-180.

Farley, J. (1982). Raising student achievement through the affective domain. Educational Leadership, 39(7), 502-503.

Flanders, N. (1970) Analyzing Teacher Behavior. Reading, MA: Addison-Wesley.

Foell, N. & Fritz, R. (1995) Association of cognitive style and satisfaction with distance learning, Journal of Industrial Teacher Education, 33(1), 46-59. EJ515572

Fulford, C. & Zhang, S. (1993) Perceptions of interaction: The critical predictor in distance education, American Journal of Distance Education, 7(3), 8-21.

Fulford, C. & Zhang, S. (1994) "Tooling up to go the distance" video interaction analysis. ED373714

Garland, V. & Loranger, A. (1996) The medium and the message: Interactive television and distance education programs for adult learners, Journal of Educational Technology Systems, 24(3), 249-257. EJ523184

Garrison, D. (1990). An analysis and evaluation of audio teleconferencing to facilitate education at a distance. American Journal of Distance Education, 4(3), 13-24.

Goode, S. (1990). Classes in the country via satellite. Insight, January, 54-55.

Grigorenko, E. & Sternberg, R. (1995). Thinking styles. In D. H. Saklofske & M. Zeidner (Eds.), International handbook of personality and intelligence (p. 205-229). New York: Plenum Press.

Gunawardena, C. & Boverie, P. (1993). Impact of learning styles on instruction design for distance education. ED359926

Hackman, M. & Walker, K. (1990). Instructional communication in the televised classroom: The effects of system design and teacher immediacy on student learning and satisfaction. Communication Education, 39, 196-206.

Harasim, (1990). Online Education: Perspectives on a New Environment. New York: Praeger.

Haynes, K. & Dillon, C. (1992) Distance education: Learning outcomes, interaction, and attitudes, Journal of Education for Library and Information Science, 33(1), 35-45. EJ444686

Hillman, D. et al. (1994) Learner-interface interaction in distance education: An extension of contemporary models and strategies for practitioners, American Journal of Distance Education, 8(2), 30-42. EJ489841

Holmberg, B. (1987). The development of distance education research. The American Journal of Distance Education. 1(3), 6-23.

Jansen, D. & Lewis, W. (1996) Creating high levels of interaction in distance education courses, ATEA Journal, 24(1), 8-9. EJ533696

Kahl, T. & Cropley, A. (1986). Face-to-face versus distance learning: Psychological consequences and practical implications. Distance Education- An International Journal, 7, 12-19.

Kerlinger, F.& Pedhazur, E. (1973) Multiple Regression in Behavioral Research. New York, New York: Holt, Rhinehart, and Winston.

Leathers, D. (1986). Successful Non-verbal Communication. Macmillian: New York.

Main, R. & Riise, E. (1995) A study of interaction in distance learning. Interim technical report for period june-august 1994. ED383282

Martin, E. & Rainey, L. (1993) Student achievement and attitude in a satellite-delivered high school science course, The American Journal of Distance Education, 7(1), 54-61.

McGreal, R. (1994) Comparison of the attitudes of learners taking audiographic teleconferencing courses in secondary schools in northern Ontario, Interpersonal Computing and Technology Journal, 2(4), 11-23. EJ493304

McHenry, L. & Bozik, M. (1995) Communicating at a distance: A study of interaction in a distance education classroom, Communication Education, 44(4), 362-71. EJ517586 and ED387849

Miller, J. et al. (1993) An evaluation of student content learning and affective perceptions of a two-way interactive video learning experience, Educational Technology, 33(6), 51-55. EJ465794

Moore, S., Glesser, G. & Warm, J. (1970). Cognitive style in the organization and articulation of ambiguous stimuli. Psychonomic Science, 21, 243-244.

Morgan, A. (1995) Improving student learning in distance education: Theory, Research, and Practice, European Journal of Psychology in Education, 10(2), 121-130. EJ516975

Nebelkopf, E. & Dreyer, A. (1970). Perceptual structuring: Cognitive style differences in the perception of ambiguous stimuli. Perceptual and Motor Skills, 30, 635-639.

Nichol, P. (1994) A Descriptive Study to Determine the Relationship Between the Nature of Student Interactivity and the Scheme for Learning in Courses Presented Over Live Television. Washington, DC: The George Washington University.

Omvig, C. (1989) Teacher/student classroom interaction in vocational education. A sex bias/sex stereotyping project. ED342943

Powers, S. & Mitchell, J. (1997) Student perceptions and performance in a virtual classroom environment. ED409005

Pugh, R. & Siantz, J. (1995) Factors associated with student satisfaction in distance education using slow scan television. ED382186

Riddle, J. (1994) Factors Which Contribute to Grade Achievement and Course Satisfaction of Distance Education Students. Dissertation at North Dakota State University.

Riddle, J. (1990) Measuring affective change: Students in a distance education class. ED325514

Ritchie, H. (1993). The effects of interaction mode on participation and interaction frequency during televised instruction with two-way audio. Journal of Education for Library and Information Science, 34(3), 218-27.

Ritchie, H. & Newby, T. (1989) Classroom lecture/discussion vs. live televised instruction: A comparison of effects on student performance, attitude, and interaction, The American Journal of Distance Education, 3(3), 36-45.

Schuemer, R. (1993) Some psychological aspects of distance education. Hagen, Germany: Institute for Research into Distance Education. ED357266

Simmons, I. (1991) Survey of student's attitudes toward the IHETS delivery system. ED330311

Simmons, I. (1992) Survey of attitudes toward the Indiana higher education telecommunication system (IHETS delivery system). ED369897

Smith, D. & McNelis, M. (1992) Distance Education: Graduate Student Attitudes and Academic Performance. ED360948

SPSS Inc. (1988). SPSS-X user's guide (3rd ed.). Chicago: SPSS Inc.

Sugai, G. & Lewis, T. (1989) Teacher/student interaction analysis, Teacher Education and Special Education, 12(4), 131-38. EJ405237

Threlkeld, R. & Brzoska, K. (1994). Research in distance education. In B. Willis (Ed.), Distance Education: Strategies and Tools. Englewood Cliffs, NJ: Educational Technology Publications, Inc.

Tiene, D. (1997) Student perspective on distance learning with interactive television, Tech Trends, 42(1), 41-47. EJ543251

Webster's Ninth New Collegiate Dictionary (ed. Frederick Mish) (1983). Springfield, MA: Merriam-Webster, Inc.

West, G. (1994). Teaching and learning adaptations in the use of interactive compressed video, Technological Horizons in Education, 21(9), 71-73.

Wilson, C. (1992) Study centres: Key to success of field dependent learners in africa. ED362739

Witkin, H., Dyk, R., Faterson, H., Goodenough, D., & Karp, S. (1962). Psychological Differentiation: Studies of Development. New York: John Wiley and Sons, Inc.

Witkin, H. & Goodenough, H. (1977). Field dependence and interpersonal behavior. Psychological Bulletin, 84, 661-689.

Witkin, H. & Goodenough, D. (1981). Cognitive Styles: Essence and Origins. New York: International Universities Press, Inc.

Witkin, H., Goodenough, D., & Karp, S. (1967). Stability of cognitive style from childhood to young adulthood. Journal of Personality and Social Psychology, 7, 291-300.

Witkin, H. & Moore, C. (1974). Cognitive style and the teaching and learning process. Princeton, NJ: Educational Testing Service.

Witkin, H., Moore, C., Goodenough, D., & Cox, P. (1977). Field dependent and field independent cognitive styles and their educational implications. Review of Educational Research, 47, 1-64.

Witkin, H., Oltman, P., Raskins, E., & Karp, S. (1971). Group embedded figures test manual. Palo Alto, CA: Consulting Psychologists Press, Inc.

Witta, E. (1996) Results of an interactive video attitude survey when using the total group with unequal group sizes versus five random samples with equal group sizes. ED398242

Wolfram, D. (1994) Audiographics for distance education: A case study in student attitudes and perceptions. Journal of Education for Library and Information Science, 35(3), 179-186. EJ489796

Yi, H. & Majiima, J. (1993) The teacher-learner relationship and classroom interaction in distance learning: A case study of japanese language classes at an american high school, Foreign Language Annals, 26(1), 21-30 Spring. EJ461304

Zhang, S. & Fulford, C. (1994) Are interaction time and psychological interactivity the same thing in the distance learning television classroom? Educational Technology, 34(6), 58-64. EJ488250